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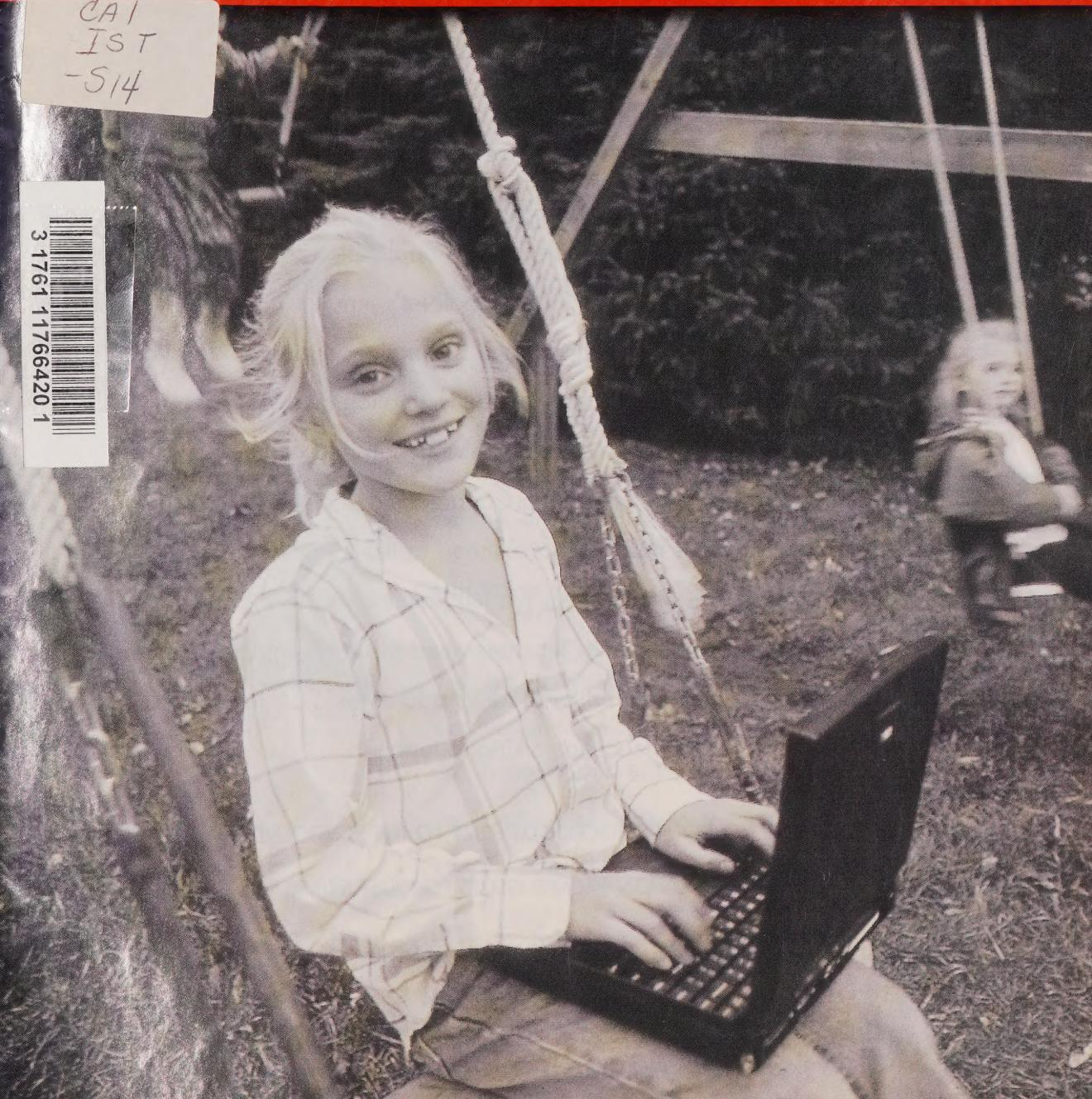
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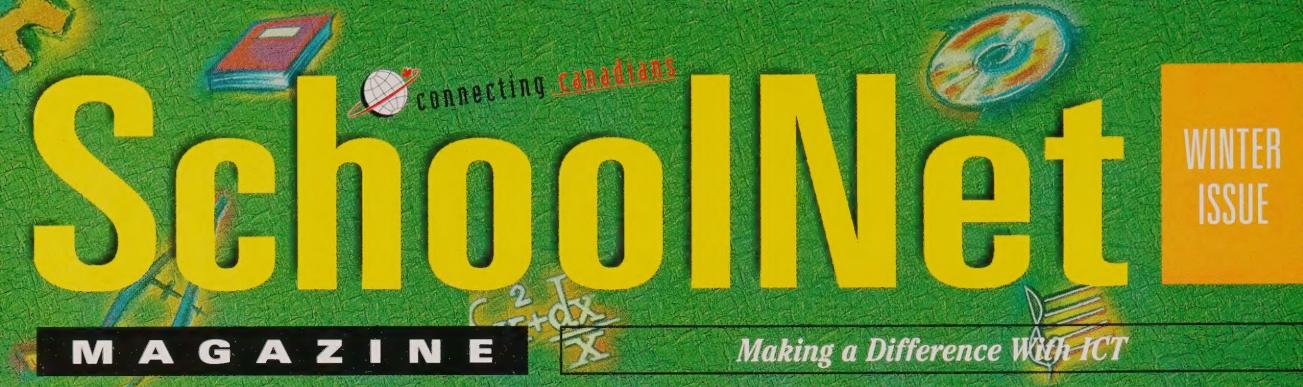
MAGAZINE

MAKING A DIFFERENCE WITH ICT

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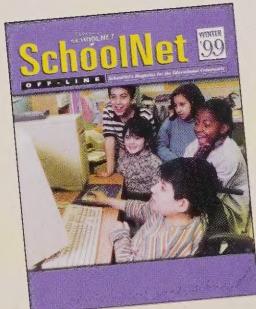
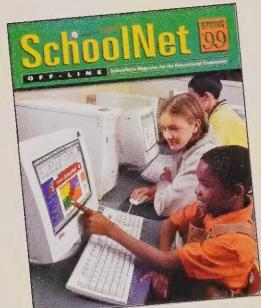
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## Here This Winter

**SchoolNet Magazine** is a high-quality publication — the first of its kind — dedicated to the application of the Internet for classroom-based teaching. SchoolNet's innovative partnership has successfully made Canada the first nation in the world to connect its schools and libraries to the Information Highway. SchoolNet supports the effective use of information and communications technologies so that young Canadians can develop the skills and competencies required to succeed in the knowledge-based economy. But to harness the full potential of the Information Highway in learning, teachers need the know-how. SchoolNet Magazine's tight editorial focus addresses .....teachers. It is all about teachers talking to teachers.



**NOW YOU CAN SUBSCRIBE DIRECTLY TO THE SCHOOLNET MAGAZINE  
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Cover Photo by: David Trattles



"Canada is number one!"

We're the first country in the world to link its schools and libraries to the Internet. That's quite a feat! But what does it mean, exactly? And, more to the point, what significance does it have for our kids' education and well-being?

Well, it means a lot more than just plugging all those thousands of modems into the wall. If that were all there were to it, then a colleague of mine would have a point in complaining that, "All that money spent on connectivity could have been better put towards new screen doors and re-paving school driveways."

In my eyes, the real winners are the kids. Connectivity is really about giving kids the keys to a better world. Connectivity is not merely about satellites, fibre optics, computer hardware and the other nuts and bolts we're using to build bridges into the future. It's about liberating kids through technology, about ensuring they have instant access to the latest information and new knowledge tools so that they can quickly acquire the new sets of skills their future will demand of them. Look at the impact of connectivity on teaching, for instance. Teachers dedicate their lives to getting their students to learn better. They work to identify and overcome the obstacles and learning blocks their students face.

Remember how it was in the days before connectivity came to Canada? Teachers worked in isolation inside their classrooms. Communicating their concerns and sharing their insights with colleagues was difficult. So was trying to keep current about new developments in teaching. And, because there was no such thing as "working virtually," the biggest obstacle for teachers was time, sheer lack of time.

How very different it is today! For example, in one of SchoolNet's online forums for educators, I recently came across a message from a teacher excitedly telling others how one of Canada's leading researchers had just published a 50-page guideline on creating effective classroom projects. The teacher gave the web site address so that others could obtain the guideline and put it to immediate use in their classes. Now, that's current!

Another thing: connecting our schools has brought global recognition to Canada's teachers. An example is the article in this issue on Stephen MacKinnon, recipient of numerous international awards for stunning educational projects. Connectivity has also enabled teachers to share innovative solutions to very real problems. An example is Colin Anderson's work to help some of his students overcome blocks and excel in computer science.

Which brings us to another benefit of connectivity: the ability to collaborate on new tools and solutions. In part, connecting Canada means fostering a spirit of partnership. As far as what connectivity means to Canada's kids, we now see schools and universities working together to develop and classroom test new teaching approaches and learning tools. To learn more about this, read our article on the exciting innovations that have come about from the work of schools with Canada's TeleLearning Network of Centres of Excellence.

Now that connectivity is a regular feature in Canada's schools, we are discovering that many are innovators, working to adapt themselves to the incessant demands that change places on them. Canada's connectivity means that they now have the tools to share the good news of their innovations with other interested schools, to enable school-to-school mentoring, and to discuss key concerns and solutions to problems.

Yes, the fact that we're first in connectivity shows in our kids. With the tools of connectivity, Canada's students are able to get quick access to current information on all subjects. They are learning to ask tough questions of the experts. They are learning to be fine-tuned, critical information consumers. The result for Canada is very much a renaissance, in which young people are surpassing themselves in their achievements.

Doug Walker, Editor

([walker.doug@ic.gc.ca](mailto:walker.doug@ic.gc.ca))

PUBLISHER

*Wili Liberman*

Editor

*Doug Walker*

Associate Editors

*Beth Clarke, Natacha Audet*

Editing

*Whitehall Associates*

Contributing Writers

*Natacha Audet, Sheri Brink, Dan*

*Burman, Kathryn Fredericks, Jazmine*

*Hayden, Brigitte Hayes, Geneviève*

*Laurence, Johanna Manley, Caroline*

*Morissette, Angie Rumpf, Nicole Stewart*

Project Co-ordinator

*Stacey Wade*

Art Director

*Vinicio Scarci*

Advertising Manager

*Wili Liberman*

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For more information, please contact Quadrant Educational Media Services Inc., 258 Wallace Ave., Ste. 206, Toronto, ON M6P 3M9, Tel.: (416) 537-2103, Fax: (416) 537-3491, E-mail: [teachmag@istar.ca](mailto:teachmag@istar.ca) To contact SchoolNet, call 1-800-575-9200. Visit the web site at [www.schoolnet.ca](http://www.schoolnet.ca) and [www.schoolnet.ca/magazine](http://www.schoolnet.ca/magazine)

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## CANADA IS # 1!

by Geneviève Laurence

In 1999, Canada became the first country in the world to connect its public schools and libraries to the Internet. And now, Canada's SchoolNet is extending connectivity to the classroom.

SchoolNet is dedicated to helping Canadians stay ahead when it comes to the educational use of information and communications technologies (ICT). By linking to SchoolNet programs, you can help the students in your class develop world-class ICT skills.

### Canadian Content on the Internet

In an era when it is possible to access a world of information with a few clicks of a mouse, building Canadian content on the information highway is imperative. SchoolNet offers cutting-edge programs to

help you bring ICT into the classroom while increasing the amount of Canadian content available online.

▲ Communities@ca offers you the opportunity to put your community on the electronic map.

▲ Canada's Digital Collections encourages students to work with Canada's museums and archives to create dazzling web sites featuring original Canadian content.

### Showcase Your Students' Work

SchoolNet also offers a world showcase for your students' work and achievements in ICT.

▲ School Site Builders is a collection of thousands of school web sites from across Canada, many of which are either built by students or feature some of their award-winning work.

▲ SchoolNet's GrassRoots Program offers funding to schools to create innovative and interactive learning projects using the Internet. GrassRoots projects continually receive international awards because of the innovative work Canadian kids are doing using ICT as they learn.

### Network of Networks

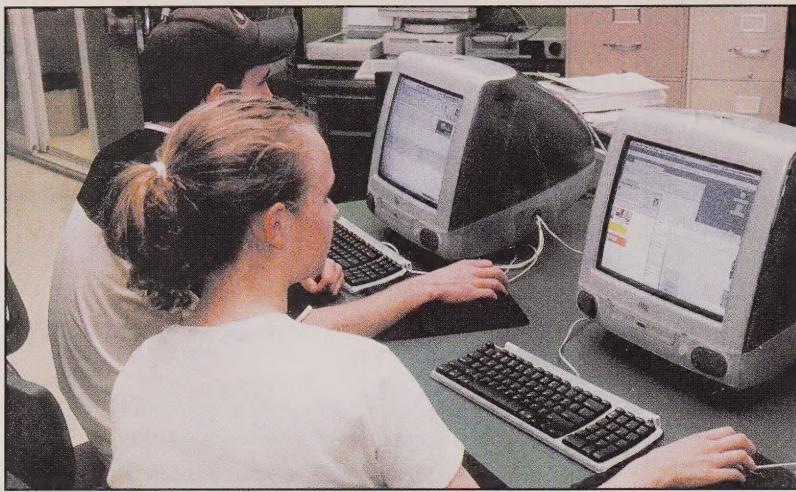
And there's more! Whenever you are searching for Canadian information, look to SchoolNet first. It gives you and your students educational resources 24 hours a day!

▲ Through SchoolNet's home page, you have access to more than 1000 top-notch learning resources and the latest research and information available online from Canada's Digital Collections, the TeleLearning Network of Centres of Excellence and ministries of education across the country.

▲ Participate with other teachers in the latest online forums. Catch up on the newest international research on incorporating ICT into the classroom. See for yourself the fantastic difference ICT is making in Canada's schools.

Don't be left out.... Visit the SchoolNet web site today ([www.schoolnet.ca](http://www.schoolnet.ca))!

*Geneviève Laurence studies journalism at Mount Royal College in Calgary. She is on special assignment with Canada's SchoolNet.*



## Network of Innovative Schools: *Sparking and Sharing Innovation*

by Kathryn Fredericks

**I**nformation and communications technologies (ICT) are profoundly affecting how we learn, as well as how we communicate and acquire knowledge in every area of our lives.

This is especially true in education. Today's students must respond to continuous changes brought about by the use of technology. They know they always have something new to learn. People used to believe that schools equipped graduates for life, but they don't think so any longer.

Change today is both incessant and relentless. There is a worldwide need for graduates who are lifelong learners. Today, successful schools must prepare vigilant and agile learners who can constantly pick up skills in new fields and quickly assess unfamiliar information. Today's students need to become strategists in lifelong learning who are able to anticipate new skills they will soon need to master.

That's why today's learning outcomes for students are changing, necessitating new kinds of schooling to address students' new lifelong learning needs. Fortunately, scattered throughout the nation, a growing number of schools have developed a culture of innovation. Right now, these innovative schools are hard at work developing new learning tools and strategies to meet the challenges of change.

In talking with educators at these schools, however, several things stand out. As innovators, they often feel isolated. They need to be in

touch with other teachers to share what they are doing. These leading schools have developed creative, practical solutions for meeting students' learning needs. Their approaches could become models for other schools across Canada. All the innovative teachers we talked to were looking for ways to share their ideas.

Help is on the way, in the form of the Canadian Network of Innovative Schools (NIS). After listening to what these educators are saying, Canada's SchoolNet is building NIS, in partnership with the Canadian Association of School Administrators, and in collaboration with the TeleLearning Network of Centres of Excellence (NCE) and provincial and territorial departments of education. NIS will give Canada's innovative schools the tools they need to get their message out to Canada and to the world.

### What is NIS?

Since its inception in 1998, NIS has been looking for Canadian schools that are showing leadership in dealing with school change related to ICT. Through its annual competition, NIS attracts all sorts of schools that are innovative leaders, including rural and urban, small and large, and elementary and secondary schools. The aim is to increase awareness of innovative, practical models being developed across the nation that other schools can implement.

The interactive network is designed to help schools share their innovative best practices for ICT-enhanced learning with other schools through showcasing, inter-school mentoring and research partnerships. This sharing should help other schools meet the challenges they face, and foster partnerships and collaboration among participating schools across Canada.

### Becoming a Member of NIS

So, how does a school become a member of NIS? Any school developing innovative solutions for dealing with change may apply to NIS. If selected, a school is eligible to receive \$10 000 that it can use to implement ICT projects. In addition, SchoolNet will promote each school's innovative work, nationally and internationally.

NIS membership application forms are available online. The form is based on solid criteria developed in consultation with all the provinces and territories, as well as with national and regional education organizations.

What is NIS seeking in schools that apply? Applicants should focus on their entire school's commitment to innovation, and describe

how everyone, at all levels, helps that school use ICT to further learning. In particular, schools should show how they, as a learning community, have developed a student-centred culture of innovation. Applicants should also realize that, if they are accepted as members of NIS, they will be called upon to share their innovative discoveries with other schools across Canada and around the world.

## What's Been Happening

People have responded warmly and enthusiastically to NIS. Member schools are working alongside many of Canada's most respected university researchers in education, particularly in partnership with the TeleLearning NCE. With its research partners, NIS is benchmarking member schools' work in ICT so that it can make national and international comparisons. A further objective of this joint research is to actively demonstrate the impact of ICT on education.

For example, in November 1999, SchoolNet held a very successful NIS institute in Montreal in partnership with the TeleLearning NCE. During this event, education researchers and K-12 educators collaborated in creative problem solving. Leaders from European SchoolNet, the European Network of Innovative Schools and Netd@ys Europe, as well as educators from across Europe, also attended the institute. Several of these international delegates took part in a panel that highlighted innovations in European ICT schooling, as well as opportunities for collaboration between Canadian and European schools. The institute featured plenary sessions, demonstrations of new technology, interactive workshops and teacher professional development, and provided information on new technology planning and measurement, global best practices and benchmarking.

NIS members have also been active in other initiatives. For instance, Port Hood Consolidated School is a small, rural, NIS member school in Port Hood, Nova Scotia that is making technology part of students' learning experience. The school is one of the first in Canada to take part in the Global Learning and Observations to Benefit the Environment (GLOBE) project, which unites students, educators and scientists from around the world in a study of the global environment.

Member schools are currently involved in a number of Internet-based collaborative projects, such as Europe's multinational Netd@ys'99 mega-project. Some members are looking to join the Twin Sites 2000 project in the Netherlands. On another front, member schools are exchanging their research findings and best practices with their European counterparts through the European Network of Innovative Schools.



Over the years, another member, Eastview Community School in Red Deer, Alberta, has coordinated a Canada-wide asthma study, entered the Global School House CyberFair, and participated in the AT&T Virtual Classroom Project with students in Texas and Japan.

The NIS online magazine provides a virtual window on NIS classrooms. Visitors to the magazine's web site can peruse the latest information about research, professional development, leadership and collaborative change. (Schools interested in becoming NIS members should visit the site — [www.schoolnet.ca/nis-rele/](http://www.schoolnet.ca/nis-rele/) — for up-to-date information, as well. Visitors to the site can also follow links to the web sites of individual NIS member schools.)

## Final Thoughts

We at SchoolNet are happy to report that NIS is having a successful first year. The pilot of NIS has exceeded our expectations, both in the quality of response from schools and in the enthusiastic commitment of the schools themselves.

The next stage in the evolution of NIS is under way. We received applications for the second membership competition in November. Provincial and territorial pre-selection committees will evaluate these applications and pass promising ones along to a national selection committee of educators, which will evaluate them in early March 2000. Finally, NIS will announce members for 2000–2001 in May and begin working with them in September.

Each year, SchoolNet plans to add more innovative Canadian schools to NIS. That way, the sharing and mentoring opportunities will grow. More and more schools will be able to share their innovative methods with other schools to help students grow into lifelong learners, ready for the challenges the new century has in store for them.

*Kathryn Fredericks is Program Officer with SchoolNet's Network of Innovative Schools.*

**T**here's no avoiding it: technology has taken hold of the modern world. Today, we use computers for everything from everyday business operations, research and writing to advanced software programming and other scientific pursuits.

With computer literacy playing such a crucial role, students' failure to take elective, introductory computer science (CS) courses in high school could spell certain death for their career aspirations — particularly in the high technology field.

Yet despite the exponential growth in the computer science field, students are showing a marked lack of interest in pursuing careers in CS. Forget "brain drain" — the bigger problem is the shortage of qualified applicants for jobs available in high technology fields. This problem is partly due to the gender imbalance in the CS workforce. The truth of the matter is far fewer girls than boys are enrolled in high school and post-secondary CS classes.

## An Unconventional Idea

It's not that girls can't perform well in this field — far from it.

"Many girls don't consider computer science a career option. They've been bombarded with images and stereotypes from media, peers and other sources telling them that males are the technological experts," explains University of Ottawa psychology expert Dr. Gail Crombie. "Not to mention that the curriculum, delivery and content of traditional CS course materials tend to be unappealing to females who are drawn to interaction, teamwork and a sense of community."

In hopes of narrowing the gap between enrollment rates of boys and girls in CS classes, Crombie joined forces in 1996 with Robert Long, Manager of Education Interaction for Nortel Networks, and computer science educator Colin Anderson of Earl of March Secondary School in Kanata, Ontario. The trio decided to offer girls an intriguing alternative by designing and implementing an all-female Grade 11 CS class at Anderson's school — a class where girls would feel comfortable enough to take risks, gain confidence in their abilities and express their ideas more assertively. Industry Canada's Information Highway Applications Branch provided funding and web server space.

The first step was to revamp the existing curriculum for both the



## Bridging Gaps, Breaking Stereotypes:

### Women in Computer Science

by Angie Rumpf

same-sex and mixed classes. The team incorporated application, web design and programming topics, with a strong focus on teamwork and mentoring. Interestingly, girls overwhelmingly choose and prefer the female class. Most appreciate having a second option in what is otherwise a male-dominated academic subject.

### The Highlights

In a preliminary study, the team found that female enrollment in the Grade 11 elective CS course leapt from 15 percent to 40 percent after the all-female class was introduced.

Girls in the all-female class felt they received more support from

teachers. This comes as no surprise to Marion Verhallen, who has been teaching the class since the second year of the project. "Girls in mixed classes are forced to fight for teacher assistance with the boys, who tend to be louder," she notes. "In such situations, the girls can learn to be more aggressive — a good thing if they're entering a field dominated by males. But if the girls lack confidence in themselves or their abilities, the all-female class provides a more comfortable venue in which to explore their assertiveness."

Sure enough, the study found that the girls' confidence levels and opinions about the value of the course mirrored those of the boys in the mixed class. The class profoundly affected female students' academic and career intentions; in the study, as many girls as boys said they planned to pursue a career in high technology.

Crombie explains that "anyone, regardless of gender, is more willing to take risks in a comfortable, secure situation. An all-female course is especially important for teens, who are at a self-conscious stage in their lives. Girls at this age are faced with a lot of gender roles and comparison." The study showed that girls in the all-female class were more vocal, active, involved and confident, took on more leadership roles, and placed a higher value on CS than girls in the mixed class.

### Survey Says

Encouraged by the results of the initial phase of the study, Crombie, Anderson and Long decided to survey students to determine which factors influence their decision to pursue a high-tech career. With the help of senior students at Earl of March, they developed and

distributed a survey to more than 100 students in eastern and central Ontario. Their findings overwhelmingly upheld the previous results.

First, they discovered that most students, regardless of gender, are aware of the wealth of opportunities in high technology. All understand the value of a university or post-secondary education in helping them realize their career objectives.

Overall, few students truly believe the stereotypes surrounding high-tech employees and enthusiasts. The one, and perhaps most interesting, exception: girls in mixed classes continue to harbour negative stereotypes about high technology. Even more disturbingly, girls in mixed CS classes believe there are fewer opportunities available to females than to males in the high technology field.

Most students would like more co-operative education programs at the high school level, particularly in areas as application- and experience-related as high technology. Likewise, many students are interested in learning more about educational and career opportunities available in CS.

## Girl Talk

How about the girls? Plenty of third-person commentary is available about the involvement of girls in CS and how all-female classes can encourage female students to enroll in this area of study. But what do the girls themselves have to say? In what follows, two university CS majors reminisce about their high school experiences and discuss their thoughts on women in the field today.

### **Sam, 19, third-year CS major, University of Calgary**

"I don't really know how it would have been to be in an all-girl class. My only experience in an all-female environment was in first-year university residence. I don't think I'd prefer to live or even be in a same-sex class; it's nice to have different views, to balance it out a little bit."

I can see the value of an all-girl class, though. It's great if you can get a mixed class filled with girls who are really outgoing, really confident. But if the girls are really shy, there's nobody who'll speak up. Not having guys around might encourage them to speak without worrying about what the guys will have to say. At that age, the last thing you want is for some guy to see you as stupid and say, 'Oh, God, you're an idiot.'

I went to a small school, only ever took one or two CS classes, mainly working with Word and spreadsheets. Good secretarial



stuff, but we never got into a whole lot of programming. So I had no idea what I was getting into when, in my first year as an astrophysics major, they made me take CS. I came into it thinking I'd hate it, that it would be boring, clicking on buttons all day, but I ended up loving it so much that I switched majors. It was so completely different from anything I'd ever done

before. I love the challenge, the satisfaction of spending hours on a problem and, when I finally find it, it's like, 'Yes! Finally!'

On the other hand, I look at someone like my sister, who never wanted to be made fun of or sound stupid. In high school, she was more timid, more role conscious, someone who wanted a safe environment with less of a risk of failure. She's a psych major, but I've encouraged her to take a computer science course; a lot of our friends are in the program and I find she always becomes quiet and withdrawn when we start a discussion. Anyway, she's really liking it and is speaking up more on the subject as she becomes more confident. I guess that's a good analogy for the personality types (me and my sister) who would perform well in a mixed versus a same-sex class."

### **Anne, 23, third-year CS major, University of Calgary**

"I didn't take a single CS course in high school, if you can believe it. I went to an all-girls' school where the only courses offered were spreadsheets and Word. I already knew how to use them on my home computer, so I wasn't interested until I got to university. I actually started out in engineering, where there's a strong drive to recruit more women. Recruitment of women into CS just isn't the same yet."

The positives of being in an all-girl environment were that I gained more confidence, didn't worry about what other people thought. To a large extent, the teachers in those schools preached it to us: 'You can do whatever you want!' But when many of us left high school, we didn't know how to function in an atmosphere that was so much less rigid. Face it: you're going to be in a mixed environment sooner or later. I think the important thing is to be told you have the ability, not just on your own, or in a same-sex environment, but whenever and wherever you happen to be."

In the end, I'd have to say that CS is no harder than any other field of study; it's just different. As with anything else, you can't know it all. You find your strength, what you're good at, and you go for it."

*Angie Rumpf is a freelance journalist on special assignment with Canada's SchoolNet.*

**A**s part of SchoolNet's Youth Employment Initiative, SchoolNet chose two young women, Johanna and Caroline, to host SchoolNet Interactive, a weekly webcast for kids.

The Youth Employment Initiative helps students gain access to valuable work experience through computer and Internet training, technical development and web research. In addition, it offers funding to help participating organizations provide employment opportunities for unemployed and underemployed young people ages 15 to 30. These work terms develop and strengthen participants' employability skills and help them move into long-term, career-related employment.

The Initiative helps schools and public libraries use information and communications technologies (ICT) efficiently and helps ensure that every learner has the opportunity to develop ICT skills.

Let's see what Johanna and Caroline have to say about their exciting learning experience.

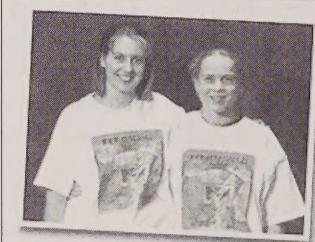
## "Lights! Camera! Action!"

### **Johanna**

"I'm Johanna, the English host of SchoolNet Interactive, an Internet show for kids. When I first heard about this job, part of SchoolNet's Youth Employment Initiative, I was very nervous about my interview, but I was also really excited. I thought it would be a chance to meet many interesting people and do tons of cool things... and I was right! I got to interview Minister John Manley, Max Keeping of CJOH-TV, astronaut Julie Payette and a very cute rock climber named Jody. I also did lots of cool things like white water rafting... that was awesome! Some of my other favourites were inline skat-

# Students on the Air with SchoolNet Interactive

by Johanna Manley and Caroline Morissette



ing, fencing, English-style horseback riding, rock climbing and go-karting in the rain!

I also learned cool stuff about the Internet. I gave presentations during the show on tips and tools for searching, surfing and using the web. I found out that the Internet is a great way to do many things! Before I started the job, I had never even heard the word webcasting, and now I know about this type of multimedia software and much more! The skills I've learned will definitely help me at school and in any future career.

This job was the best working experience I've ever had! Being in front of the camera was nerve racking, but I got used to it right away. My job was frustrating sometimes, because everything I did on camera had to be just right,

and there was lots of memorizing. I remember, during one of the first sets of filming, it took me a whole day just to do my introduction. I'm proud and thankful that I kept going and I never gave up. My accomplishments this summer were a tremendous amount of work, but they were worth every ounce of energy I spent.

Now when I go back to school and do oral presentations in front of my class, they will be a piece of cake! No more sweating, turning red or pulling blanks, because I had the awesome opportunity to host a cool Internet show for kids.

I had a lot of fun working with the SchoolNet Interactive team during the summer, and I would like to thank all my friends at SchoolNet and CyberShop ATM Canada for a fabulous experience.

Thanks for watching!"

### **Caroline**

"Hi, my name is Caroline and I was the French host of SchoolNet Interactive during the

summer. I'm writing this article simply because I'd like to let everyone know how much fun I had and what a great experience it was to work with the people at SchoolNet and CyberShop ATM Canada under SchoolNet's Youth Employment Initiative.

When my teacher told me about this job, I was thrilled! It has always been a dream for me to be part of such a cool project. I've always aspired to become a movie director, and I knew it would be an excellent opportunity for me. Even though I am a shy person, I went ahead with the interview. I never thought I'd be chosen... . I was so excited when I got the news!

Thanks to this job, I had an amazing summer. I learned a lot of fascinating things about various subjects, such as nature and health and safety. I also acquired a certain competence in the field of computer technology. I discovered new artistic styles and met a lot of interesting people with really interesting jobs. Big Sugar, Max Keeping, Leanne Laing and a cool street artist named Juan were some of my favourites. I even had the chance to try all sorts of different sports that I never thought I'd participate in, such as rock climbing and white water rafting.

And finally, I acquired a lot of experience in the film business. I'm much more assertive and comfortable in front of the camera, and it's much easier for me to speak in front of large groups. I saw studios such as the one at CJOH-TV in Ottawa, and I got a feel for all the work that is done behind the camera in many different settings. I also had the chance to work with a great team of individuals. Everyone had different skills to offer and I learned lots of tricks and received useful tips from all my co-workers. That's why I would like to thank all the people I worked with at CyberShop ATM Canada and SchoolNet, because my valuable career and personal accomplishments would have been impossible without them."

You can get more information on SchoolNet's Youth Employment Initiative by going to [www.schoolnet.ca/yei](http://www.schoolnet.ca/yei). And don't forget to check out the archived episodes of SchoolNet Interactive by pointing your browser to [www.schoolnet.ca/interactive/e](http://www.schoolnet.ca/interactive/e)

*Johanna Manley and Caroline Morissette are on special assignment with Canada's SchoolNet.*

The advertisement features a yellow background with a large, stylized 'CBC4KIDS' logo in the upper left corner. To the right of the logo, the website address 'teachers.cbc4kids.ca' is displayed in blue. Below the address, the text 'A guide to using the Internet in the classroom' is written in blue. The main title 'CBC4Kids Teacher's Guide' is centered at the bottom in large, blue, bubbly letters. Above the title, there are five numbered icons with corresponding text: '1 Teaching Strategies and Quick Ideas', '2 Lesson Plans', '3 Tech Tips', '4 Educational Resources', and '5 Staff Room'. The 'CBC' logo is located in the bottom left corner. The entire advertisement is framed by a thin black border.

1 Teaching Strategies and Quick Ideas

2 Lesson Plans

3 Tech Tips

4 Educational Resources

5 Staff Room

CBC4Kids Teacher's Guide

# N

ew software and theories are leading to innovations in teaching and learning.

These days, teachers constantly have to rethink their approach to ensure computing in the classroom helps students learn effectively. When they get it right, the results are "Wow!"

But how best to get it right? The TeleLearning Network of Centres of Excellence (NCE) has assembled a team of researchers across Canada to study best practices in K-12 classrooms and to develop effective educational software and approaches. Recognizing the importance of classroom-based research, Canada's SchoolNet is a key supporter of the TeleLearning NCE. Together, both organizations help schools continue to apply network-based computing in the classroom.

Here's a first-hand look at some of the pilot projects and software developments coming out of the TeleLearning NCE.

## Click and Learn

"Wow!" is the most common response from students using the interactive math dictionary at Saint John High School in Saint John, New Brunswick. Graphics software makes it simpler to illustrate many math concepts on a computer screen than on a blackboard.

Allowing students to experiment with real data is one way of making mathematics relevant to them. When a student enters a value and sees the corresponding change in a bar graph, things start to click.

Companies such as MathResources Inc. are modifying math tools previously available only on CD-ROM so that students can use them with a web browser. This gives students greater flexibility in when and where they learn math. (You can try one of these tools, MathProbe, at [www.mathresources.com/br\\_dict.htm](http://www.mathresources.com/br_dict.htm), if your web browser can handle Java applets.)

The tools developed by MathResources are becoming more popular around the world. Industry Canada's Office of International Partnerships and the TeleLearning NCE recently put the company in touch with SchoolNet India, which has committed to a pilot project



## Technology Ignites Change in K-12 Classrooms

by Brigitte Hayes

because we now have the knowledge of how to learn on our own," says a Grade 6 student using Knowledge Forum.

Evaluators have compared Knowledge Forum and non-Knowledge Forum classrooms at the elementary level. These studies have shown that students in Knowledge Forum classrooms have significant advantages in depth of understanding and vocabulary, higher test scores in reading comprehension and superior math problem-solving skills. "Contribution and collaboration are critical elements in boosting student interest and motivation," concludes Dr. Mary Lamon, a researcher with the Ontario Institute for Studies in Education in Toronto.

But it's not only the students who benefit. Teachers are "wildly supportive," according to Lamon, because Knowledge Forum fosters class enthusiasm and allows them to check each student's progress daily.

This monitoring capability is important to Richard Reeve, a teacher at the Institute of Child Studies in Toronto, who has used Knowledge Forum for three years. "The students may not have the knowledge the teacher assumes, and by being able to assess each child's understanding at any point in time it has made me more accountable as a teacher," he says.

in which 60 000 students are expected to be using the software by the year 2001.

## Creating Knowledge Together

Many software packages allow students to learn individually; communal databases allow them to interact with each other, their teachers and outside experts.

Marlene Scardamalia and Carl Bereiter, both leaders of TeleLearning NCE research teams, have developed a software package to create knowledge repositories. Originally called the Computer Supported Intentional Learning Environment and now known as Knowledge Forum, the software has been used in more than 100 sites worldwide, 50 of them in Canada.

"I think that the way we learn science is much better than others

Teachers familiar with Knowledge Forum say it is most useful for guided discovery. Rather than supplying all the information to be learned, the teacher becomes a guide, providing students with a resource list and opportunities for hands-on experimentation to corroborate their research. As a result of this self-directed approach, students are more motivated and most of them exceed the curriculum's learning objectives.

"I can't imagine teaching without it these days," says Elizabeth Tumblin, a 19-year teaching veteran who has used Knowledge Forum for five years. Tumblin, who teaches both English- and Inuktitut-speaking students in Iqaluit, Nunavut, says the main benefit of the software is its adaptability to any topic and any student's level. In addition, the software was recently enhanced to allow students to work in Inuktitut, so it has become more culturally relevant to Inuit students. And because the school maintains a central database, all of the students have access to the knowledge repositories being created. "They learn from each other's work," explains Tumblin.

## Fully Engaged Learners

Many students are fully engaged when creating their own videos. Now, thanks to recent innovations in moviemaking hardware and software, more students can become authors in a medium they consume constantly. TeleLearning NCE project leader Ronald Baecker has developed a movie authoring and design system.

Commercialized and now known as CineKit, the software has been used in multimedia summer camps and high schools.

Since moviemaking is a generic tool for expression and communication, it can be used in English, drama, history, geography, science and cross-curricular projects. "A video essay can add life to an otherwise dry topic," says Dan Milligan, who teaches communications technology at Brookside Secondary School in Cobourg, Ontario.

Learners at Brookside recently participated in a Heritage Canada project by making one-minute movies about the Avro Arrow. Although none had shown any previous interest in history, they became heads-down workers when it came to researching their theories about the Arrow, conducting live and e-mail interviews, and preparing the video and audio content.

"The fact that their theories and movies were going to be publicly available on a web site made this an authentic experience for them," says Milligan. "They became very conscious of accuracy and overall quality." As a result, the students performed above their grade level



in communications technology, and improved their personal and organizational skills.

Prior to the Avro project, students had typically done stand-alone projects about their personal interests. But the authenticity provided by external demands has changed Milligan's approach. "We will do more cross-curricular work in future," he says.

## Beyond Curriculum

"I learned the importance of organization," says one moviemaking class attendee. Project management, collaboration, self-motivation and problem solving — these are some of the skills students develop while doing project work with computing technologies. Such skills are essential in knowledge workers, according to Thérèse Laferrière, who leads the TeleLearning NCE team, Educating the Educators.

"Group work, project work and higher thinking skills are some of the lifelong learning skills we need to impart to our students today so that we succeed in the knowledge-based economy of the future," she says.

Students participating in these innovative projects have learned several important concepts. They understand that technology is a tool for doing real work, that learning is an open-ended, lifelong process, and that learning in groups can be very effective.

As one Grade 6 Knowledge Forum user expressed it, "This year, Knowledge Forum has shown me that I also work well with other people. The thing I really like about Knowledge Forum is that even though you may not be working on the same subject together, you are still learning together. We learn together as a community of learners."

## Check Out These Web Sites

Telelearning NCE:

[www.telelearn.ca](http://www.telelearn.ca)

Interactive math tools such as MathProbe:

[www.mathresources.com](http://www.mathresources.com)

Computer Supported Intentional Learning Environments:

[www.csile.oise.on.ca](http://www.csile.oise.on.ca)

Knowledge Forum: [www.learn.motion.com](http://www.learn.motion.com)

Movie authoring and design with CineKit:

[www.expresto.com](http://www.expresto.com)

*Brigitte Hayes is a freelance journalist on special assignment with Canada's SchoolNet.*



## Surfing with One of Canada's Innovative Educators

by Sheri Brink

**A** web site is like a child. Each one is unique and special in its own way," says Stephen MacKinnon.

An Internet technology teacher at Athens District High School in Ontario, MacKinnon has worked with his students to develop a dozen web sites on subjects ranging from their hometown of Athens and the notorious Year 2000 bug to Canadian aid for Chernobyl. His enthusiasm for introducing his students to the challenge of the Internet is infectious as you enter his classroom and catch the students' excitement in the air. And, no doubt, there is reason for their excitement.

In 1997 and 1998, students in MacKinnon's Internet technology class had an excellent opportunity — through the AT&T Virtual Classroom Competition — to collaborate on web sites with students from as far away as Japan, the United States and Australia. As a result, MacKinnon and two of his students had the chance to travel to Japan in 1997 to receive the first place award and to Hong Kong in 1998 to receive the second place award in the prestigious competition.

As can be expected, working virtually requires students to develop new skills. The Internet makes it a lot easier to collaborate, but the challenges lie in reaching agreements online, overcoming miscommunication, dealing with differences in culture and effectively communicating ideas.

MacKinnon likes to teach educational topics that involve students in new, fun and creative ways. He believes strongly in empowering students in their work, as well as in modelling the learning process

to them, and he challenges them to learn new things every day.

The most innovative of MacKinnon's Athens projects has been Mission 2000, a web game based on the Year 2000 problem. Players start at a New Year's Eve party. Once the clock strikes midnight, things mysteriously malfunction. Players then travel back in time to fix 10 Y2K problems around the world. Mission 2000 won the deBono Award for Educational Innovation in March 1999.

MacKinnon says sparking excitement and creativity in his students is never a problem. "There are three aspects to gaining innovation from your students. The first is the nature and structure of the projects. In this case, kids love seeing their work on the web and take a lot of pride in it. It's also found in the energy that erupts from the excitement of doing a project that is award-winning and

showcased to the world online. And finally, innovation is found when students work in environments where they are empowered to make their own decisions."

Apart from teaching his own students, MacKinnon is taking part in a pioneering project with the Ontario Ministry of Education, which is running a nation-wide online high school. Students from almost every province and territory are participating in double-credit high school courses in either Internet technology or environmental studies. Every day, MacKinnon goes online to teach and interact with the students in the Internet technology course through public bulletin boards, real-time chat, e-mail and web-based lessons.

And as if that wasn't enough for a busy teacher, MacKinnon also runs an online project for music teachers. The ENO Music CyberFest is the first-ever online music festival for student musicians. Bands, soloists and composers participate in various categories. There is even a place for students to jam with each other.

No doubt about it, Stephen MacKinnon has a special gift. His enthusiasm for helping others learn and his ability to inspire student innovation are truly award-winning.

To see some of the Athens projects, visit the school's web site ([www.ucdsb.on.ca/athens/index.htm](http://www.ucdsb.on.ca/athens/index.htm)). Go to ([www.enoreo.on.ca/musickyberfest](http://www.enoreo.on.ca/musickyberfest)) for information on the ENO Music CyberFest.

*Sheri Brink is in public relations at Mount Saint Vincent University in Halifax, and is on special assignment with Canada's SchoolNet.*

# TIME CAPSULE 2000

All Canadians have a unique opportunity to let future generations know what life was like in Canada in the last millennium. The fact that we are straddling two millennia makes this a special moment in history!

Tell future generations about yourself, about what it's like for you to live in two centuries! Send your valuable memories to us so that they're not forgotten!

Until February 29, 2000, you can send us your testimonies in the form of text, poems, photos, drawings, sound recordings and so on. All submissions will be sealed in Time Capsule 2000 and placed in the National Archives. The capsule will be reopened in the year 2020 by the prime minister in office at that time.

To take part in this unique event, visit the Time Capsule 2000 web site,  
[\(http://www.schoolnet.ca/capsule2000/\).](http://www.schoolnet.ca/capsule2000/)



## AN ACTION COURSE FOR YOUTH, A RESOURCE CENTRE FOR TEACHERS

The United Nations Association in Canada has developed a training course on human rights for youth and a Tool Box on the United Nations for teachers.

The Action Course will take place from March 16–18. Involved youth will participate in interactive workshops on topics such as the UN Human Rights System, children's rights, conflict resolution and action strategies, delivered by dynamic and experienced facilitators. Youths between 16–19 with an interest in global issues are being sought as participants. Interested students should contact Ele Pawelski ([ele@unac.org](mailto:ele@unac.org), 613-232-5751 x247).

The Tool Box ([www.unac.org/teachers](http://www.unac.org/teachers)) includes Curriculum Guides for teaching about the United Nations, fact sheets, backgrounders on a variety of global concerns and useful links. It is accompanied by a kids' site ([www.unac.org/kids/what\\_kind\\_of\\_world](http://www.unac.org/kids/what_kind_of_world)).

## SchoolNet's Metadata: An Innovative Tool for Teachers!

by Natacha Audet

While the Internet is one of the most incredible inventions of the 20th century, it can sometimes turn into one of the most frustrating. With thousands upon thousands of web sites, how can you, as a teacher, quickly discover which ones are most relevant to your teaching needs?

Well, Canada's SchoolNet is introducing a new Internet indexing system, called

Metadata, that will help you do just that. This site, offered in both official languages, has been specially developed for the Canadian educational system.

You will find the complete collection of SchoolNet's online teaching resources to date, indexed by title, address, description, keywords and school level or age group. To mine this enormous database, choose one of three search types: simple, intermediate or advanced.

A simple search allows you to search using keywords in both official languages. An intermediate search enables you to fine tune your search according to specific

categories, while an advanced search lets you exploit the full potential of the Metadata indexing system through multiple text windows corresponding to various categories.

Moreover, a user-friendly help section explains the search index in detail, so you can benefit fully from this rich new resource.

Visit the Metadata search index ([www.schoolnet.ca/home/e/search](http://www.schoolnet.ca/home/e/search)) and you will never look back!

*Natacha Audet is a Communications Officer with Canada's SchoolNet.*

SchoolNet  
**METADATA**

It's no secret that libraries and museums offer a wealth of Canadian literature and history within their walls. WestWords throws open the doors of the Gibsons and District Public Library and the Elphinstone Pioneer Museum in British Columbia, and invites students into a digital world of stories, artifacts, poems and plays.

As a collaborative effort, WestWords' imaginative web site encourages students to explore how writers write and how history creates artifacts. From the home page, students can enter the museum to explore oral histories of West Coast pioneers and to view photographs and artifacts from the museum's collection. Students can also enter the library and browse through the diaries, scrapbooks and stories in the Virtual Reading Room.

"WestWords is an innovative solution to

## Opening Doors to West Coast Literature

by Nicole Stewart

two common problems — how to share a community's stories with a broader audience, and how to introduce students to regional authors and local history," says Dace Beggs, Chief Librarian at the Gibsons and District Public Library.

On the site, Howard White, a well-loved author, poet and publisher, pairs his stories with tales of his youth. His writing tips and scrapbook describe how he developed his own unique literary voice. Excerpts from

Joan MacLeod's plays are enlivened by tales of her evolution from enthusiastic young writer to mature playwright. In the museum section of WestWords, West Coast pioneers describe the artifacts they once owned.

The Gibsons and District Public Library is one of 23 libraries acknowledged in LibraryNet's Best Practices '99. Diane Bays, LibraryNet Manager, says, "WestWords' lush graphics and vibrant stories express the thrill of creative writing and the breadth of West Coast literature and history."

Users can view WestWords at [www.gibsonslibrary.bc.ca/index.htm](http://www.gibsonslibrary.bc.ca/index.htm) and can get the complete list of Best Practices '99 winners from LibraryNet's home page ([www.schoolnet.ca/ln-rb/e](http://www.schoolnet.ca/ln-rb/e)).

*Nicole Stewart is on special assignment with the LibraryNet Program.*

## Aboriginal Peoples Television Network: A New Resource for Teachers

by Dan Burman

For the first time in broadcast history, First Nations, Inuit and Métis people have the opportunity to share their stories with the rest of the world on a national television network dedicated to Aboriginal programming.

Aboriginal Peoples Television Network (APTN), launched in September, offers all Canadians a glimpse into the rich variety and texture of Aboriginal life across this country and around the world.

Through documentaries, newsmagazines, dramas, entertainment specials, children's series and educational programs, APTN showcases the remarkably diverse history and culture of indigenous peoples. It also gives Aboriginal producers, directors, actors, writers and media professionals an unprecedented opportunity to create innovative, reflective and relevant programming for Canadian viewers.



More than 90 percent of APTN's programming originates in Canada; shows from the United States, New Zealand and Australia are also part of APTN's schedule. The network broadcasts 60 percent of its programs in English, 15 percent in French and 25 percent in a variety of Aboriginal languages.

The new network will be a valuable resource for those teaching history, geography, science and other subjects. It can provide ideas and video material for class discussions or projects.

Programs on APTN include *The Originals*, which presents portraits of original personalities such as Buffy Ste. Marie, and *Indian Legends*, which depicts the values various Aboriginal peoples hold and shows how the oral storytelling tradition reinforces those values. There's also *Takuginai*, a popular show from Nunavut that teaches children cultural values such as respect, sharing and patience.

The APTN web site ([www.aptn.ca](http://www.aptn.ca)) provides a programming schedule. Check it out — you'll be glad you did.

*Dan Burman works with the Ecumenical Aboriginal Rights Coalition in Ottawa.*



## Fun, Free and Current Curriculum Ideas!

by Jazmine Hayden

Classroom Connections is turning the heads of educators across Canada. It's a not-for-profit group of educators and parents working to provide top-quality resources to schools through programs sponsored by Canadian organizations.

"Our programs provide teachers with authentic, relevant and current learning resources for their students," says Heather MacTaggart, Executive Director of Classroom Connections. "We secure appropriate sponsorship for each program, and hire teachers to develop and write materials that meet the necessary curriculum requirements."

Free programs and resources for schools, fun and learning for students, and information for parents and caregivers are Classroom Connections' three areas of expertise. School boards register with the organization and then participating schools receive an extensive resource kit containing various programs that add a fun twist to learning.

The Money and Banking program, sponsored by Royal Bank, is an innovative example of how Classroom Connections tries to present quality curriculum that engages both teachers and students. In one of the related classroom activities, students watch a video called *Agents in Black* produced by TV Ontario. This spoof on the movie *Men in Black* teaches students important lessons about money and banking.

Classroom Connections also distributes *POP! Magazine* to students in grades 4–7, and *Family Connections* to parents and caregivers. *POP! Magazine* informs kids and inspires them to learn and make a difference, while *Family Connections* informs parents about programs and offers suggestions for home-based activities they can do with their children. The most recent issue of *Family Connections* features a new section called SchoolNet Connections, which highlights SchoolNet's Metadata, School Support Parents and GrassRoots programs.

"Classroom Connections serves as another excellent means of putting information about our programs directly into the hands of students, teachers and parents across the country," says SchoolNet Executive Director Elise Boisjoly.

"SchoolNet has great programs for all of our audiences. Students, teachers and parents will truly benefit from learning resources geared toward computer technology. I must say, the partnership is a perfect fit within our organization," says MacTaggart.

If you have not received a resource kit from Classroom Connections, you may still have a chance! Simply persuade your local school board to register online ([www.classroom-connections.com](http://www.classroom-connections.com)).

Jazmine Hayden studies public relations at Mount Saint Vincent University in Halifax. She is on special assignment with Canada's SchoolNet.

## Network to Savings Expands

Savings that were once available only to school boards and schools are now available to individual teachers through SchoolNet's Network to Savings (NTS).

NTS helps teachers give their students advantages. NTS features the latest products from industry leaders such as Corel, Signal 9 and HC Data, and respected educational publishers such as Britannica and Trifolium Books.

The days of sifting through piles of catalogues and magazines trying to find the educational products you need are over. Simply log on and visit the new and refurbished NTS web site ([www.schoolnet.ca/savings](http://www.schoolnet.ca/savings)).

# National Election for the Rights of Youth

by Geneviève Laurence

On November 19, Canada's young people made their voices heard loud and clear through the first-ever National Election for the Rights of Youth.

Canadians between the ages of 6 and 17 voted for the right they felt was most important to them. Of the 10 options on the ballot, the polls showed that 24.2 percent of Canadian young people chose family as their most important right.

Choices included the rights to education, family, food and shelter, health, name and nationality, non-discrimination, own culture, protection from harm, rest and play, and sharing opinions.

Other rights that ranked high on the list were food and shelter, which 19.6 percent of voters felt was their most important right, and health, which 10.7 percent placed first on their ballot.

Nation-wide, 187 757 Canadians under the age of 18 went to the polls.

Organized by Elections Canada and UNICEF Canada, the election marked the 10th anniversary of the United Nations Convention on the Rights of the Child. According to Harry Black, Executive Director of UNICEF Canada, the election was an opportunity "to ensure that the rights of the child are generally recognized and respected, and accepted as the fundamental principles and international standards of conduct in dealings with children." The event also helped kids learn how the democratic process works.

Check out the Elections Canada web site for more information ([www.itsyourvoice.com](http://www.itsyourvoice.com)).

*Geneviève Laurence studies journalism at Mount Royal College in Calgary. She is on special assignment with Canada's SchoolNet.*



## Ziff-Davis Supports SchoolNet GrassRoots National Campaign

Ziff-Davis, producer of the Comdex trade shows in Toronto, Montreal and Vancouver, as well as Ottawa's Technology in Government Week, has announced its support for the SchoolNet GrassRoots National Campaign.

This partnership initiative, which Industry Canada is leading, is seeking \$15 million in private sector support to develop 20 000 classroom-based online learning projects by March 31, 2001. These projects will help five million young Canadians develop the information technology skills they need to succeed in an information economy.

As part of the partnership, Ziff-Davis will profile the Campaign in the communications materials it uses to promote its Canadian trade shows, which attract an annual audience of more than 100 000 information technology professionals.

"The SchoolNet GrassRoots program is a cutting-edge initiative aimed at developing a knowledge-based workforce in Canada," said Bob Bierman, General Manager for Ziff-Davis shows in Canada. "As producers of Canada's largest technology events, we are pleased to leverage our resources to increase awareness and encourage private sector support for the Campaign."



To mark our nation's entry into the 21<sup>st</sup> century, the Department of Canadian Heritage is proud to work with citizens of every age group to recognize their communities' role models

# "Our Canadian Heroes"

In the Fall '99 issue of SchoolNet Off-Line, the tone was set for a fresh perspective on Canadian identity by the article entitled "Canadian Heroes: Our Pathway to Pride." To maintain the timely and heroic momentum, this issue contains an innovative teaching tool in the form of a poster/insert. "At Home With Our Heroes" offers you and your students a unique opportunity to explore further chapters in a stirring saga of human accomplishment - the one we proudly call the "Story of Canada." It's an easy-to-use complement to the Path of Heroes Web site, that will soon be made available to mark the beginning of the new millennium. The electronic voyage of discovery in [www.heroes.ca](http://www.heroes.ca) is charted to turn a learning experience into a passport to fun and adventure. It encourages young Canadians to recognize our pioneers, inventors, singers, artists, athletes, writers, peacekeepers, veterans and so many others as homegrown heroes. Be they part of Canada's history or alive and well today; be they known the world over or just at the community level; great Canadians have a common vision of a country that is the envy of the world and, in the words of the Prime Minister, "the place to be in the 21st century."

Throughout the coming year, many occasions will tie in well with the concept of Canada as the homeland of heroes. Your class could base its visit with role models of yesterday, today and tomorrow on any number of special occasions: National Flag of



Terry Fox



Kenojuak Ashevak

Canada Day in February, National Volunteer Week in April, Canada Day or Remembrance Day (a particularly historic one since an Unknown Soldier will be brought home from France to permanently lie in rest at the National War Memorial in Ottawa on May 28). Whatever the celebration, students can readily use the Web site and theme poster to honour our heroes of the past, and share in the activity of defining their own heroes of today. They'll see that learning about Canada's gallery of greatness can and should be fun. Thanks to the "At Home With Our Heroes" guide, we can all enjoy the stories of Canadians from every province and territory, from all eras and walks of life, from First Nations and all cultural communities - men, women and youth who strive to make Canada the best nation in which to live and plan for a promising future together.

Two companion Web sites that are found in the Government of Canada's "SchoolNet" work particularly well in concert with the Path of Heroes. "Generations CanConnect" was designed in 1999 in response to The International Year of Older Persons. It helps Canada's youth develop virtual friendships with senior citizens, learn their stories, and profit from their life experience (<http://generations-canconnect.ic.gc.ca>). The "GrassRoots Program" assists teachers in developing on-line class projects (including "Heroes") aimed at increasing Canadian content on the Internet. ([www.schoolnet.ca/grassroots](http://www.schoolnet.ca/grassroots))

# Program Links Seniors and Youth

Generations CanConnect is a new program designed to help young people meet and interact with senior citizens while learning the information technology skills important to their economic future.

Students in grades 5 through 12 will interview a senior about a treasured object or a memorable event in the senior's life and submit a completed profile to the Generations CanConnect web site. Completed group projects of 25 profiles are eligible for \$300 in funding.



Check out the program's web site (<http://generations-canconnect.ic.gc.ca>) for links to curriculum, registration forms and easy-to-use templates for building a web project. For information kits, call 1-800-575-9200.

## 35th World Skills Competition

For the first time ever, Canada played host to the 35th World Skills Competition, a globally renowned event that is the pinnacle of excellence in the professional, technical and trades sectors.

More than 600 young people from 34 countries competed in 41 different trades and technologies.

From November 11 to 14, a total of 1800 delegates and an estimated 100 000 visitors took part in the celebration at Montreal's Olympic Stadium.

The event was co-sponsored by the Government of Canada's Youth Employment Strategy and is part of Human Resources Development Canada's (HRDC) family of millennium initiatives. At HRDC, we believe that this event demonstrates our commitment to helping meet the human development needs of Canadians and their communities in the next millennium.

For more specific information on the competition, and other HRDC millennium projects for you and your students, please visit the millennium section of HRDC's website ([www.hrdc-drhc.gc.ca](http://www.hrdc-drhc.gc.ca)).

For more information on exciting opportunities in skills, trades and technology, visit Skills Canada at ([www.skillscanada.com](http://www.skillscanada.com))



## GrassRoots Communities



Involve your students in an environmental millennium challenge, an Easter egg hunt, a word search, a Canadian spelling puzzle, and many other exciting online classroom activities!

How? It's easy. Just visit the GrassRoots Communities@ca web site

(<http://www.schoolnet.ca/grassroots/e/showcase/index.htm>)

and take part in the fun!

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## Online Teaching Resources!



Visit TEACH Magazine's web sites and be prepared to explore.

[www.schoolnet.ca/teach](http://www.schoolnet.ca/teach) features

four curriculum units:

- The Nansen Project — Canada's involvement in the field of human rights
- The MapMaking Project — all about cartography and the mapping of Canada
- The Good Earth Project — ideas on how to improve society and the world
- The Canadian Theatre Project — history of theatre in this country

[www.schoolnet.ca/teach/e/whoarewe](http://www.schoolnet.ca/teach/e/whoarewe)

is a web site that explores Canada and Canadians from 25 000 BC to the present day. The first two modules are now available online. They cover early history and culture to the year 1700. More are in development.

Brought to you by the editorial staff of TEACH Magazine: Where education doesn't begin and end in the classroom.

# CANADIAN SKIES



This star chart featured on the Canadian Skies poster is a tool for observing the stars and constellations visible to the naked eye throughout the year in the Northern Hemisphere. The poster has been revised since it was first distributed in the Sept./Oct.'99 issue of Teach Magazine. Please contact the National Research Council Canada if you would like to receive the updated poster. For further information about astronomy, please consult <http://www.hia.nrc.ca/outreach/education>. For information about careers in science, refer to <http://www.nrc.ca/imagination>.

# LAUNCH PAD FOR THE NEW CURRICULUM

Log on to [www.teachnutrition.org](http://www.teachnutrition.org) and connect with a great new teacher-tested website designed to help you meet the healthy eating expectations of the new Ontario Health and Physical Activity Curriculum.

- Look at our exciting, cross-curricular programs
- Order resources or book a teacher workshop
- Take our Nutrition Quiz
- Share ideas in our Teachers' Forum
- Explore resources for parents

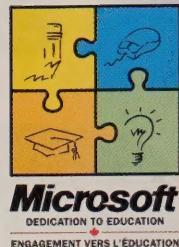


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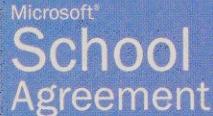
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